OPERATION AND MAINTENANCE PLANS
ASH GROVE CEMENT COMPANY ▪ SEATTLE, WASHINGTON

Prepared by:

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Ash Grove Cement Company (Ash Grove) owns and operates a portland cement plant ("the Plant") in Seattle, Washington. Ash Grove has determined that the Plant is an area source of hazardous air pollutants (HAPs), as defined in 40 CFR 63.2. Therefore, the National Emission Standards for Hazardous Air Pollutants for the Portland Cement Industry (PC NESHAP) are only applicable to the in-line kiln/raw mill as the designated "affected source" at the Plant. [40 CFR 63.1343(d)].

Emissions of dioxins and furans from the in-line kiln/raw mill must be determined to be in compliance with the standards contained in 40 CFR 63.1343(d)(1) or (2), as appropriate, using the test methodology specified in 40 CFR 63.1349(3)(i). During the performance tests specified in 40 CFR 63.1349(b)(3), the average inlet temperature to the particulate matter control device, i.e., baghouse, serving the in-line kiln/raw mill must be determined as specified in 40 CFR 63.1349(b)(iii) and (iv). This temperature then becomes the operating limit for the three-hour rolling average [40 CFR 63.1350(f)(3)] maximum inlet temperature for the baghouse in accordance with 40 CFR 63.1344(b).

The Plant must be in compliance with the applicable portions of the PC NESHAP by June 14, 2002.

1.1 IMPLEMENTATION OF THE PC NESHAP

The PC NESHAP requires the preparation of an Operations and Maintenance Plan (OMP) for each affected source at the Plant. The OMP must be submitted to the Administrator of the U.S. Environmental Protection Agency or delegated state for review and approval. Ash Grove has prepared an OMP for the in-line kiln/raw mill.

1.2 CONTENT OF THE OMPS

At all times, the Plant must operate and maintain affected sources, including air pollution control equipment, in a manner consistent with good air pollution control practices. The OMP must contain procedures for proper operation and maintenance of the in-line kiln/raw mill in order to meet the emission limits for dioxins and furans, and to meet the operating limit for maximum baghouse inlet temperature. [40 CFR 63.1350(a)(1)] The OMP also must include procedures to be used during inspection of the components of the combustion system of the kiln at least once per year. [40 CFR 63.1350(a)(3)].

Ash Grove prepares and uses Standard Operating Procedure (SOP) documents to set forth procedures for normal operation of and malfunction abatement for process systems and associated air pollution control devices within the Plant. Standard Maintenance Procedure (SMP) documents are prepared and used for performing routine and preventative maintenance on equipment within each process system and associated air pollution control devices. Detailed operating and maintenance procedures for each affected source are contained in the referenced SOPs and SMPs where appropriate.

Together, the SOPs and SMPs contain all the information necessary to satisfy the requirements for the OMP. Referencing the SOPs and SMPs in the OMP allows Ash Grove the flexibility to

revise these operating documents as needed while meeting the objectives of 40 CFR 60.6(e). The use of the SOPs in this manner is allowed to satisfy the requirements of 40 CFR 63.6(e)(3) for Startup, Shutdown and Malfunction Plans.

The regulations require the preparation of an OMP for each affected source. However, the in-line kiln/raw mill is a component within two process systems at the Plant. Procedures for operation and maintenance of the in-line kiln/raw mill, therefore, are designed and carried out in relation to the function of the in-line kiln/raw mill within the Plant. Consequently, SOPs and SMPs are prepared for the kiln and raw mill systems, rather than for the individual affected source. Thus, the SOPs and the SMPs realistically describe procedures actually used at the Plant to operate and maintain the in-line kiln and raw mill systems.

1.3 ORGANIZATION OF THE OMPS

An OMP that includes the control procedures for baghouse inlet temperature has been prepared for the in-line kiln/raw mill.

The details of the operation and maintenance of the in-line kiln/raw mill system that are subject to alteration are found in the SOPs and SMPs. The SOPs and SMPs will be maintained in a format that is suitable for and consistent with the OMP format.

The objective of the OMP is to ensure that the emission limit for dioxin and furans, and the operating limit for maximum baghouse inlet temperature are met for the in-line kiln/raw mill. The OMP states the dioxin and furan emission limit and the baghouse inlet temperature operating limits for the in-line kiln/raw mill. The OMP also provides reference to the SOPs and SMPs that contain the procedures for proper operation and maintenance of the in-line kiln/raw mill in order to meet these limits.

The affected source at the plant is the in-line kiln/raw mill. To satisfy regulatory requirements [40 CFR 1350(a)], there must be an OMP for the in-line kiln/raw mill.

To provide for a fully integrated system to monitor operations of the in-line kiln/raw mill, the OMP for the in-line kiln/raw mill contains references to the SOPs and SMPs that describe in detail the operation and maintenance of the in-line kiln/raw mill.

The Plant Manager is responsible for review and alteration of the OMP and supporting documents, and implementation of the OMP. The Plant Manager, at his or her discretion, may delegate completion of the designated duties to qualified subordinates. The following is a list of job titles of persons who are qualified to perform OMP review and implementation duties as delegated.

- Environmental Manager
- Production Manager
- Maintenance Manager
- Plant Engineer
- Production Supervisor / Shift Supervisor
- Maintenance Supervisor

There is one in-line kiln/raw mill in the Plant. The in-line kiln/raw mill designations are:

- 416.KD1 – Kiln
- 414.PH1 – Preheater
- 316.MR1 – Raw Mill

The following sections briefly describe the process activity that is accomplished by the in-line kiln/raw mill. The events that define startup and shutdown of the kiln and raw mill systems are included in the descriptions. The defined start and stop events will be used to record the occurrence and duration of each startup and shutdown of the affected source [40 CFR 63.10(b)(2)]. The procedures for the in-line kiln/raw mill components are discussed in two separate process systems: the Raw Mill System (01) and the Kiln System (02).

5.1 RAW MILL SYSTEM (01)

Portland cement clinker is produced from a carefully proportioned mixture of limestone, clay, sand, and steel scale that has been ground to a powder in a vertical roller mill. Once prepared, this mixture is known as raw meal and/or kiln feed.

The Raw Mill System is applicable to the production of cement raw meal in the Raw Mill System component of the in-line kiln/raw mill. The major component of the system is raw mill 316.MR1. Startup of the Raw Mill System commences when dedusting filters 317.FZ3 and 411.FZ1, and rotary feeder 411.RF3 are started as part of the raw mill startup sequence. Startup of the Raw Mill System is complete when the mill feed rate is at least 120 tons per hour and the mill motor current is at least 80% of full scale. Shutdown of the Raw Mill System commences when raw mill 316.MR1 is stopped. Shutdown of the Raw Mill System is complete when dedusting filters 317.FZ3 and 411.FZ1, and rotary feeder 411.RF3 are stopped.

5.2 KILN SYSTEM (02)

Raw meal or kiln feed is heated to insipient fusion in a pyroprocessing system. The resulting intermediate product is known as portland cement clinker.

The Kiln System is applicable to the production of portland cement clinker in the preheater/precalciner kiln system that is an integral part of the in-line kiln/raw mill system. The major components of the Kiln System are preheater tower 414.PH1 and rotary kiln 416.KD1. Startup of the Kiln System commences when main baghouse dust collector fan 413.FZ1 is started as part of the kiln startup sequence. Startup of the Kiln System is complete when the rotary kiln is running on its main drive at a minimum of 0.70 rpm, raw meal is being fed to the preheater tower at a minimum rate of 75 tph, and clinker of adequate quality is being produced. Shutdown of the Kiln System commences when fuel flow to the main burner pipe is terminated. Shutdown of the Kiln System is complete when the cool-down schedule has been fully executed.

This Section provides the OMP for the in-line kiln/raw mill.

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Equipment No.: 416.KD1, 414.PH1, 316.MR1	**Ash Grove Cement Company**	**Page:** 1 of 4
Control Device: 413.BF1	**Seattle, Washington**	**Revision No.:** 0
Approved By: Craig Gotro	**Systems:** 01 02	**Revision Date:** 5/20/2002
Date Approved: 5/20/2002		**Description:** In-line Kiln/Raw Mill

1.0 Objective

This Operation and Maintenance Plan (OMP) is established to ensure that the emission limits of 40 CFR 63.1343(b)(3) and the operating limit of 40 CFR 63.1344(a) are met for this affected source.

2.0 Purpose

This OMP provides a reference to the appropriate Standard Maintenance Procedure (SMP) and Standard Operating Procedure (SOP) documents in which preventive maintenance and normal operating procedures are described. The SOP also contains the corrective actions to be taken in the event of equipment malfunctions and the emission limits for the affected source.

3.0 Process Description

This OMP is applicable to the production of portland cement clinker in the preheater/precalciner kiln system that is an integral part of the in-line kiln/raw mill system. The major components of the Kiln System are preheater tower 414.PH1 and rotary kiln 416.KD1. Startup of the Kiln System commences when main baghouse dust collector fan 413.FZ1 is started as part of the kiln startup sequence. Startup of the Kiln System is complete when the rotary kiln is running on its main drive at a minimum of 0.70 rpm, raw meal is being fed to the preheater tower at a minimum rate of 75 tph, and clinker of adequate quality is being produced. Shutdown of the Kiln System commences when fuel flow to the main burner pipe is terminated. Shutdown of the Kiln System is complete when the cool-down schedule has been fully executed.

4.0 Emission Limit/Compliance Technique

4.1 PC NESHAP - Emission Limits

The in-line kiln/raw mill shall not caused to be discharged into the atmosphere dioxins and furans in excess of 0.2 ng TEQ/dscm, corrected to 7% oxygen, or 0.4 ng TEQ/dscm, corrected to 7% oxygen, if the temperature at the inlet to the main baghouse is 400°F or less. [40 CFR 63.1343(b)(3)]

4.2 PC NESHAP - Operating Limits

Per 40 CFR 63.1344(a), the in-line kiln/raw mill must be operated such that the temperature of the gas at the inlet of the main baghouse does not exceed the temperature limit set during performance testing conducted in accordance with 40 CFR 63.1349(b)(3)(iv).

Compliance with the emission standards and operating limits will be demonstrated by completing the monitoring, recordkeeping, and reporting outlined in this document.

5.0 Operating Procedure

This affected source is operated in accordance with Procedures SESOP-01 and SESOP-02.

6.0 Maintenance Procedure

This affected source is maintained in accordance with Procedures SESMP-01 and SESMP-02. The procedures for the annual combustion system inspection are contained in Procedure SESMP-02.

7.0 Monitoring

The temperature of the in-line kiln/raw mill gas at the inlet to the main baghouse will be monitored by a thermocouple located

at the inlet to the baghouse. The thermocouple shall be installed, maintained, and operated as required by 40 CFR 63, Subpart A, general provisions, and outlined in the Continuous Monitoring System Plan (CSMP) SECSMP-003.

8.0 Corrective Actions

Corrective actions to be taken in response to any malfunction of this affected source that would lead to non-compliance with the applicable emission standard can be referenced in Procedures SESOP-01 and SESOP-02.

9.0 Recordkeeping

To document compliance with the applicable emission standard, the following records will be maintained:

1. Dates and times identifying each period the continuous monitoring system (CMS) was inoperative.
2. Specific identification of each period of excess emissions that occurs during periods other than startups, shutdowns, and malfunctions.
3. The total process operating time during the reporting period.
4. Records of all CMS calibration checks.
5. Records of all adjustments and maintenance performed on CMS.
6. Records of all maintenance performed on the air pollution control equipment.
7. Documentation of the annual inspection of combustion system components.
8. Quarterly temperature sensor calibration.
9. Continuous records of temperature of the in-line kiln/raw mill exhaust gas at the inlet to the associated baghouse, including data recorded during unavoidable breakdowns.
10. Records of three-hour rolling average baghouse inlet temperature for the in-line kiln/raw mill.
11. Documentation of the mode of operation (i.e. raw mill on/off).
12. Records of all maintenance performed on the air pollution control equipment.

10.0 Reporting Requirement

The following reporting requirements specified for excess emissions from the in-line kiln/raw mill during periods other than startup, shutdown, and malfunctions are specified in 40 CFR 63.10 and 63.1354.

10.1 Excess Emissions Report and CMS Performance Report

If the total CMS downtime for the reporting period is 10 percent or greater of the total operating time for the reporting period and the total duration of excess emissions, or process or control parameter exceedances for the reporting period are greater than 1 percent, submit the excess emission report and the CMS performance report by the 30th day following the end of each calendar half. Otherwise, only the summary report must be submitted. The report must contain the following items:

1. Information from the relevant standard(s) (emission and operating parameter limitations).

2. The corrective action taken or preventive measures adopted.

3. Name, title, and signature of the responsible official who is certifying the accuracy of the report.

4. The nature of the repairs or adjustments to the CMS that was inoperative.

5. The nature and cause of any malfunction (if known).

6. The date and time identifying each period during which the CMS was inoperative.

7. The specific identification of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source.

8. The specific identification of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods of startups, shutdowns, and malfunctions of the affected source.

9. The total process operating time during the reporting period.

10.2 CMS Semi-Annual Summary Report

A semi-annual summary report will be submitted by the 30th day following the end of each calendar half. The summary report must include the following items:

1. Company name and address

2. Identification of each HAP monitored at the affected source

3. Brief description of the process units

4. Emission and operating parameter limitations specified in the relevant standard(s)

5. Monitoring equipment manufacturer(s) and model number(s)

6. Beginning and ending dates of the reporting period

7. Description of any changes in CMS, processes, or controls since the last reporting period

8. Failures to comply with any provision of the OMP

9. Name, title, and signature of the responsible official who is certifying the accuracy

10. Date of the report

11. Date of the latest CMS certification audit

12. All failures to calibrate thermocouples and other temperature sensors as required under 40 CFR 63.1350(f)(7)

13. Results of any combustion system component inspections conducted within the reporting period as required under 40 CFR 63.1350(i)

14. Emission data summary, including the total duration of excess emissions during the reporting period, total duration

of excess emissions expressed as a percent of the total source operating time during the reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, other known causes, and other unknown causes

15. CMS performance summary, including the total CMS downtime during the reporting period, total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes and other unknown causes

16. All exceedances of maximum control device inlet gas temperature limits specified in 40 CFR 63.1344(a) and (b)

Reporting requirements for excess emissions during startup, shutdown, and malfunction are described in Procedures SESSMP-01 and SESSMP-02.